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Andes or Puna with its wonderful xerophytic forms, the eastern sclerophyll forests, the northern Paramo, and the luxuriant eastern tropical forests. This part of the work is rather fully illustrated by excellent cuts and photographic reproductions. A short section follows on the culture plants, the volume concluding with an account of the geological development of the Peruvian flora, mostly in the form of tabulations.—H. C. COWLES.

## Plant life of Maryland

"The plant life of Maryland" is the title of a volume issued as a Special Publication of the Maryland Weather Service, and is one of a series of reports of unusual completeness and excellence. The first of these reports dealt with the physiography and meteorology of the state; the second with the climate and weather of Baltimore and vicinity; and this, the third volume, presents the plant life in its relations to the physiography and climate, also inquires into the correlations between natural vegetation and crop possibilities, and includes the agricultural features and forest resources of the state.

The main part of the volume is by Shreve, who directed the botanical survey. His introduction summarizes the geography, climatology, topography, mineralogy, and soils of Maryland. In Part II, after a brief history of field botany in the state, he discusses the floristics according to the present knowledge of the flora, comparing the three zones (coastal, midland, and mountain) with respect to the number and species of plants, and the floristic relations of the zones to each other and to other regions.

Part III occupies the body of the book and presents the ecological plant geography. Shreve considers first the eastern shore district of the coastal zone under the several divisions: upland, swamp, marsh, aquatic, dune, and strand vegetation. Comparison of this district with the coastal plain of New Jersey and of the southern states brings out striking variations. Chrysler treats the western shore district of the coastal zone under the following topics: forests (upland, lowland, and cypress swamps), marshes (fresh and salt), peat bogs, strand, and cultivated plants, the chief interest being in his discussion of the succession of the forest types and in the transition of salt to fresh water marshes, this region affording unusual opportunities for such studies. In the lower district of the middle zone, the vegetation is classified by Shreve according to the soil types, the topographical and general physical conditions being here uniform, and the vegetation less diversified than elsewhere. The upper district of the midland is divided into four natural belts of ridges and valleys, and the characteristic plant life of these divisions is discussed by BLODGETT. SHREVE describes the mountain zone under seven headings: slopes,

<sup>&</sup>lt;sup>5</sup> Shreve, Forrest, Chrysler, M. A., Blodgett, Frederick H., and Besley, F. W., The plant life of Maryland. 4to. pp. 533. pls. 39. figs. 15. Baltimore: Johns Hopkins Press. 1911.

ridges, valleys, rocky slopes, glades, swamps, bogs, the topography determining in each case the character of the vegetation.

In Part IV, on the "Relation of natural vegetation to crop possibilities," Shreve concludes that only in a general way may the native or introduced plant cover, as seen today, be significant of agricultural capabilities, although there is evidence that the virgin forest did give indication of the character of the underlying soil which was observed to advantage by the early settlers. Part V, on the "Agricultural features" by Blodgett, Part VI on the "Forests and their products" by F. W. Besley, and Part VII, a "List of plants collected or observed" by Shreve, complete the book.

The careful work of the authors and the collection of the floristic and ecological data make this a valuable treatise of its kind. It is handsomely printed and abundantly illustrated. For regions presented in such detail and with many local references, the lack of adequate maps is often noticed.— LAURA GANO.

## MINOR NOTICES

Wettstein's Handbuch.—The mere fact that a second edition of a book has become necessary indicates that it has met some need. The second edition of Wettstein's Handbuch does not differ essentially from the first edition. Minor inaccuracies have been corrected, additions have been made both from the rapidly increasing literature and from the author's own investigations, and a large number of illustrations, of the same high grade which made the first volume useful, have been added. As in the first edition, the work on angiosperms is particularly extensive, occupying about one-half of the entire book. This part of the work presents a compact, profusely illustrated account of all the more important families, which should give the beginner a sound foundation for advanced work, and which cannot fail to be helpful even to the professional taxonomist. It is encouraging to note that in discussing the phylogeny of angiosperms, the monocotyls are derived from the lower dicotyls.—Charles J. Chamberlain.

Ornamental shrubs.—It is safe to predict that the latest handbook by Apgar, while intended for the general public, will prove most useful to the teaching botanist who has occasion to draw much of his material from parks and greenhouses. In its scope the volume includes not only native and hardy shrubs, but also introduced forms, many of which are conservatory plants in the northern United States. Numerous keys, based mostly upon leaf characters, appear to be most efficient in aiding the student to identify

<sup>&</sup>lt;sup>6</sup> Wettstein, R. V., Handbuch der systematischen Botanik. <sup>2</sup>d edition. 8vo. pp. viii+914. figs. 600. Leipzig: Franz Deuticke. 1910. M 24.

<sup>&</sup>lt;sup>7</sup> Apgar, Austin C., Ornamental shrubs of the United States. 12mo. pp. 352. figs. 621. New York: American Book Company. 1910. \$1.50.